# ARJUNA JEE 2023

## Atomic Structure

**DPP-01**

**1.** The charge to mass ratio of electron was found to be
(1) $1.6022 \times 10^{-19}$ C $kg^{-1}$
(2) $1.925 \times 10^{12}$ C $kg^{-1}$
(3) $1.758 \times 10^{11}$ C $kg^{-1}$
(4) $1.869 \times 10^{13}$ C $kg^{-1}$

**2.** The ratio of mass of an electron to that of the mass of hydrogen atom is
(1) 1:3871 (2) 1:1837
(3) 1:1296 (4) 1:3781

**3.** The radius of nucleus is approximately______times smaller than the radius of atom.
(1) 1,00,000 (2) 5,000
(3) 10,000 (4) 200

**4.** When $\alpha$-rays strike a thin gold foil then
(1) Most of the $\alpha$-rays do not pass through the gold foil
(2) Most of the $\alpha$-rays get deflected back
(3) Most of the $\alpha$-rays get deflected through small angles
(4) Most of the $\alpha$-rays pass through without any deviation

**5.** The number of neutrons present in deuterium is
(1) 0 (2) 1
(3) 2 (4) 3

**6.** Calculate the number of protons, neutrons and electrons in $^{39}_{19}K$.

**7.** Which of the following species has maximum charge to mass ratio?
(1) $D^+$ (2) $H^+$
(3) $He^+$ (4) $He^{2+}$

**8.** Among the following the lightest subatomic particle is:
(1) Electron (2) Neutron
(3) Proton (4) Deutron

**9.** Which is true?
(1) e/m values of cathode rays generated by discharge of different gases are different
(2) (e/m) value of anode rays generated by discharge of different gases is same
(3) $\left(\frac{e}{m}\right)_{proton} > \left(\frac{e}{m}\right)_{electron}$
(4) $\left(\frac{e}{m}\right)_{proton} > \left(\frac{e}{m}\right)_{\alpha-particle}$

**10.** Rutherford's scattering experiment is related to the size of the
(1) Nucleus (2) Atom
(3) Electron (4) Neutron

**11.** Most of the alpha particles passed through the gold foil without deflection because:
(1) Atoms are stable.
(2) Most of the space inside the atom is empty.
(3) Atoms are unstable.
(4) All the space in the atom is covered by nucleus.

**12.** Cathode rays have:
(1) mass only
(2) charge only
(3) neither mass nor charge
(4) mass and charge both

**13.** Which has highest e/m ratio?
(1) $He^{2+}$ (2) $H^+$
(3) $He^+$ (4) H

# Answer Key

1. **(3)**
2. **(2)**
3. **(1)**
4. **(4)**
5. **(2)**
6. Proton → 19
   Neutron → 20
   Electron → 19
7. **(2)**
8. **(1)**
9. **(4)**
10. **(1)**
11. **(2)**
12. **(4)**
13. **(2)**

